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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

8

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,986

Applicant(s)

YU, HUA

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claim Analysis

It is noted that, according to Applicant's description of component (1), the presence of epoxy groups are not essential to the invention insofar as the variable "b" may equal zero and there is no proviso that A¹ or A² must represent an epoxy group where "v" equals zero. Likewise, component (2) is not required to possess silanol/alkoxy groups. Hence, the composition of claim 1 could be distilled down to, for instance, a composition comprising a silanol-terminated polysiloxane, a alkyltrialkoxysilane, and a polydimethylsiloxane. In view of Applicant's omission of any statement requiring epoxy groups in (1) and silanol/alkoxy groups in (2), the instant invention would be anticipated by literally dozens of references. Nonetheless, to abbreviate the length of this Office action, only those references teaching mixtures of epoxy-functionalized silicones^{and} alkoxy/silanol-functionalized silicones will be summarized.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10-11, 13-15, and 19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ona et al., U.S. Patent # 6,416,558. Ona discloses the treatment of fibers with a silicone oil emulsion comprising crosslinked silicone particles dispersed in a silicone oil which, in turn, is dispersed in an aqueous medium (column 1, lines 66-67 through column 2, lines 1-4). Cationic, anionic, and non-ionic surface actives are mentioned as adjuvants that serve to stabilize the organosilicon composition in water.

The aforementioned oil is one that is preferably linear in structure and should not be reactive towards the components that together form the crosslinked particles (column 2, lines 26-29). Trimethylsiloxy-terminated polydimethylsiloxane is particularly mentioned as useful in this capacity. Especially relevant to the current rejection is Ona's statement that the substituents of this non-reactive component may feature carboxy groups and epoxy groups (column 2, lines 46-49). Epoxy-substituted silicones impart a variety of desirable effects according to column 7, lines (63-67 through column 8, lines 1-3).

Concerning the crosslinked particles, they may be formed via a hydrosilylation method involving alkenyl-functionalized polysiloxane and an organohydrogensiloxane. Alternatively, a *condensation*-crosslinking type system is also contemplated in column 5, lines 13-24. The participating compounds are generally a polyorganosiloxane bearing silanol groups or hydrolyzable groups including alkoxy groups and a silane

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containing at least three hydrolyzable groups. Titanium and tin salts of carboxylic acids (column 5, lines 64-67) are recommended as condensation catalysts. Of the various silanes adhering to the general description, methyltrimethoxysilane and vinyltrimethoxysilane are favored (column 5, lines 53-55).

It is acknowledged that Ona does not disclose the degree of polymerization of the polymer materials whereas claims 1 and 11 are specific as to how many repeat units are contained in each of (1), (2), and (3a). Nonetheless, Ona does report viscosity ranges for the non-reactive silicone oil (1-100,000,000 mPa s in column 6, lines 26-29 and 10-1,000 mPa s in the Examples) and crosslinkable silicone (20-10,000 mPa s in column 5, lines 48-50). Materials having these viscosities would inherently satisfy the polymer length requirements of claims 1 and 11.

As for the method by which the emulsions are prepared, a mixture of the crosslinkable silicone, crosslinking agent and non-reactive silicone is first produced. These materials are added to an aqueous medium whereupon the first two materials are made to react to yield a system comprised of a silicone oil in water emulsion wherein the oil contains crosslinked particles having, of course, a smaller particle diameter than that of the droplets of oil dispersed in water (column 3, lines 57-60). Notably, the catalyst is added as a separately prepared emulsion in the Examples. Furthermore, the product obtained from emulsifying the aforementioned materials and subsequently crosslinking the crosslinkable polysiloxane with a silane is employed as a treating agent on fibers. Different methods of applying the emulsion are divulged in

column 8, lines 7-15. Application of the emulsion is followed by heat treatment hence all of the limitations of claim 11 are satisfied.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sumida, U.S. Patent # 4,252,933. Sumida discloses a treating composition for rendering various surfaces water repellant, wear resistant and of high lubricity. In its most basic incarnation, the composition is comprised of:

- (i) a hydroxyl-endblocked polydimethylsiloxane having a viscosity of 1,000 to 2,000,000 centistokes (column 3, lines 14-21),
- (ii) an epoxysilicone having a polymerization degree of 50 to 1,000 (column 3, lines 38-41),
- (iii) an amino-substituted silane or siloxane polymer,
- (iv) a poly(methylhydrogen)siloxane (column 4, lines 39-52), and
- (v) a catalyst comprising a metal salt of a fatty acid (column 4, lines 57-68).

In an alternative embodiment, components (ii) and (iii) may be reacted prior to their incorporation into the composition. It is significant that the epoxy-functionalized components disclosed in the Examples are also predominantly methyl substituted because claims 7 and 8 are, as a result, at least rendered obvious.

As for claims 4 and 6, the composition may be made available as a solution in an organic solvent or as an aqueous mixture that employs a surfactant. Moreover, all surfactants fall into one of the categories mentioned in claim 6 hence this embodiment

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of the invention is also obvious despite Sumida's failure to particularly identify suitable emulsifiers.

As for claim 10, this claim is rejected because Sumida discloses component (3a). That is, claim 10 further limits (3b) but is still dependent from claim 1, which is rejected on the foundation that (3a), which is the alternative to (3b), is taught by the reference. Therefore, it is immaterial that the silane is being further limited by claim 10 because this is not the aspect of claim 1 over which a rejection has been made.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9, 12, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ona et al., U.S. Patent # 6,416,558. In the Examples, all of the alkyl substituents are methyl groups. Inasmuch as Ona has also disclosed those materials wherein some of the alkyl groups in the non-reactive silicone are replaced with epoxy groups, claims 7, 8, 16, and 17 are at least obvious.

As for claims 9 and 18, the overwhelming majority of epoxy-functionalized silicones taught in the patent literature contain epoxy substituents of the variety delineated by Applicant. Therefore, these embodiments of an epoxy substituent are obvious.

As for claim 12, the practice of removing surplus coating material from the surface of fabric is widely practiced in the textile-treating art.

Claims 11-19 have not been rejected over Sumida because the treatment of textiles is neither explicitly nor implicitly taught by the reference. The Examiner could not ascertain why it would have been obvious to treat textiles with Sumida's composition since the other substrates are not similar in chemical makeup.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 703-605-1176. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

April 7, 2003



Robert A. Dawson
Examiner
703-308-2340